



General

Guideline Title

Guiding principles for the care of older adults with multimorbidity: an approach for clinicians.

Bibliographic Source(s)

American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity. Guiding principles for the care of older adults with multimorbidity: an approach for clinicians. J Am Geriatr Soc. 2012 Oct;60(10):E1-25. [222 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Approach to Older Patients with Multimorbidity

All clinicians, including primary care providers (physicians, physician assistants, and nurse practitioners), pharmacists, geriatricians, specialists, and other clinicians who take care of older patients with multimorbidity often find themselves challenged on many levels. Of particular concern are complexities involved in clinical management decisions; inadequacy of good evidence for making informed, shared decisions; and time constraints and reimbursement structures that hinder the provision of efficient quality care. One approach is illustrated in Figure 1 in the original guideline document, a flowchart that presents one sequence of questions and considerations useful in the optimal management of older people with multimorbidity. The steps suggested can be taken in other sequences with equal validity, particularly because the best approaches to addressing this population have not been compared, and few approaches of this type appear in the literature. For example, in many instances, patient preferences are best elicited in the context of the patient's prognosis.

The five main domains below apply at various steps illustrated in Figure 1 in the original guideline document. These domains represent themes that must be considered when caring for older adults with multimorbidity.

I. Patient Preferences Domain

Guiding Principle

Elicit and incorporate patient preferences* into medical decision-making for older adults with multimorbidity.

*By using the term "patient" preferences throughout this section, the panel aims to keep the patient central to the decision-making process while fully recognizing that family and social supports play a vital role in the management of older adults with multimorbidity and in the decision-making process. Although this is particularly true for the many older adults with multimorbidity who have cognitive impairment, it is

also often true for those who maintain decision-making capacity.

How to Use in Clinical Practice

All clinical decisions require an assessment of patient preferences. The preferences can be elicited according to the degree of complexity of the situation and the importance of preference to the decision being discussed. The clinician can customize the elicitation of preferences so that decision-making is abbreviated in less-complex situations and more expansive when many options and preferences need to be considered. For clinical management decisions with multiple options, the process of eliciting patient preferences requires several steps.

Recognize when the older adult with multimorbidity is facing a "preference sensitive" decision. In such situations, the clinician must understand what is most important to the patient to determine the best option. Older adults with multimorbidity are more likely to confront these kinds of decisions because of the burdens that the many potential therapies for each condition, the increased risk of adverse events, and the possibility of more limited benefits impose. Some examples of "preference sensitive" decisions are therapy that may improve one condition but make another worse (e.g., inhaled corticosteroids to treat chronic obstructive pulmonary disease may exacerbate osteoporosis); therapy that may confer long-term benefits but may cause short-term harm (e.g., medications for primary or secondary disease prevention that have adverse effects such as statins, which decrease cardiovascular risk but may cause cognitive impairment or muscle weakness); and multiple medications, each with benefits and harms that must be balanced. Many treatments used in this population can improve individual disease-specific outcomes but may be difficult for the patient to take and be associated with greater risk of falls, weight loss, or dizziness.

Ensure that older adults with multimorbidity are adequately informed about the expected benefits and harms of different treatment options. This step consists of broad consideration of the effects of treatments and interventions on multiple health domains. For example, although clinicians often label adverse medication effects as less important "side" effects than the beneficial outcomes the medications are designed to produce, the individual taking the medication may consider the side effects important outcomes in their own right. Therefore, adverse effects in such cases need to be considered as "harms."

Although it is a challenging task, numerical likelihoods should be provided to patients if they are available. It has been shown that words used to convey frequencies, such as "rarely" or "frequently," are interpreted highly variably, and there continues to be a debate about the best way to present numerical information to patients. Generally well-accepted recommendations include presenting the likelihood of the event occurring and the likelihood of the event not occurring, to avoid framing the outcome positively or negatively; presenting absolute rather than relative risks; and providing visual aids, based on evidence that pictographs may be most helpful. Older adults have variable levels of "health numeracy" (capacities to access, interpret, and act on numerical and quantitative health information). Low numeracy may be associated with greater difficulty in understanding risk information. Assessing patients' understanding of the information presented (e.g., using a "teach back" technique) is an important element of this step.

Elicit patient preferences only after the older individual with multimorbidity is sufficiently informed. Various decision aids are available to help inform patients and elicit preferences, but these may fail to account for the likelihood of different outcomes that may vary greatly with different comorbidity and risk-factor profiles. Decision analysis involves the creation of a *decision tree*, which identifies all potential outcomes of each treatment option. The utilities of each outcome are then calculated, based on preference, and assessed using approaches such as the standard gamble and time trade-off. Conjoint analysis identifies the characteristics of different treatment options; assigns levels to each characteristic (based on severity of a symptom or likelihood of an outcome); and uses rating, ranking, or discrete choices to determine which characteristics are most important to an individual. For busy clinicians, a simpler method of eliciting preferences may be to ask patients to prioritize a set of universal health outcomes that can be applied across individual diseases. Typical outcomes would include living as long as possible, maintaining function, and alleviating pain and other symptoms. The individual treatment options are considered in terms of their effects on each of these outcomes, so that a treatment can be selected according to its likelihood of achieving the patient's most-desired outcome or avoiding the least-desired outcome.

There are several additional considerations for clinicians to keep in mind when attempting to elicit preferences. First, clinicians need to distinguish between eliciting preferences and making a treatment decision. The former is the process by which patients voice their opinions about the different treatment options in the context of their values and priorities (the process upon which choice of care is based), whereas the latter is the process by which a specific option is chosen. Patients vary widely in their preferred decision-making style. Some patients prefer to make the decision themselves, whereas others leave the decision to the clinician or choose to share the process of decision-making with the physician. Regardless, virtually all individuals want their opinion to guide the decision. Second, patients may want their family, friends, and caregivers to be included in decision-making or even to make the decision for them. For patients with cognitive impairment who are unable to understand the implications of different options, these significant others become surrogate decision makers who work with clinicians to make decisions on behalf of the patient. Individuals who are cognitively intact may also want their family to be involved. Third, preferences may change over time, so it is important that they be reexamined, particularly when an older adult with multimorbidity has

experienced a change in health status. Fourth, the principle of eliciting preferences and involving patients in the decision-making process does not mean that the patient has the right to demand any and all treatment options if these options do not have a reasonable expectation of some benefit.

II. Interpreting the Evidence Domain

Guiding Principle

Recognizing the limitations of the evidence base, interpret and apply the medical literature specifically to older adults with multimorbidity.

How to Use Evidence in Clinical Practice

There are several general principles to consider in evaluating clinical evidence. Reviews of evidence should be based on key clinical questions so that it is possible to determine whether a study informs this question or not. Rigorous methods of reviewing the quality of evidence and its applicability to specific populations have been developed and accepted into common usage. Although some small differences occur between these approaches, there are a few central concepts in all of them that are consistent and noteworthy.

Furthermore, certain questions can be excellent guides to evaluating whether a piece of evidence—regardless of the source—is applicable to an older person with multimorbidity. Although the questions offered below focus on clinical practice guidelines (CPGs), they could apply to any piece of scientific evidence. The questions are grouped into five sections: Applicability and Quality of Evidence, Outcomes, Harms and Burdens, Absolute Risk Reduction (ARR), and Time Horizon to Benefit.

Applicability and Quality of Evidence

A fundamental question is whether it is scientifically appropriate to apply the results of a particular study to the population under consideration. In other words, what is the "applicability" of the information? Clinical studies enroll patients drawn from particular populations or subsets of a population. How well the research findings from a particular study apply to older adults with multimorbidity depends upon how closely the individual being considered resembles the research population. Clinicians should try to ascertain whether multimorbid, or even older, people were included in the studies in sufficient numbers to make the study findings applicable to this specific population in a meaningful way. If so, was there evidence of effect modification of intervention effects associated with a factor such as multimorbidity or specific comorbidities?

Equally important when considering multimorbid patients is an evaluation of the quality of evidence. Published clinical studies vary considerably in their adherence to accepted principles of clinical research. Even a strongly positive result should be viewed with caution if it is from a poor-quality study, because the results may be attributable to flaws in the study design or analysis. In this regard, a body of evidence is more helpful than a single positive study. Existing approaches to evaluate the quality of evidence are appropriate for older adults with multimorbidity and will be useful to clinicians. In particular for older adults with multimorbidity, clinicians must seek a balance between other aspects of quality of evidence and applicability. For example, well-designed randomized clinical trials diminish the problems of confounding seen in observational studies but often exclude individuals with multimorbidity. Although results from observational studies are often considered weaker than those from randomized clinical trials, such studies are more likely to include older adults with multimorbidity, and they may provide more information about the adverse events associated with an intervention in this population (see Table 3 in the original guideline document).

Outcomes

Clinical trials evaluate many different types of outcomes. For example, trials are often designed to measure intermediate outcomes (surrogates) that are not of immediate importance to patients (e.g., laboratory markers), but there is ample justification in the literature for study designs that evaluate "patient-important outcomes." Intermediate outcomes in themselves may not affect patients directly. An individual might not value a high cholesterol result as highly as a patient-important outcome, such as a stroke or myocardial infarction, although such patient-important outcomes may sometimes be tightly linked to the intermediate outcomes. In addition, outcomes relevant to older patients with multimorbidity may not be addressed in the narrow focus of disease-specific trials. For example, quality of life, physical function, and independent living may matter more to some older adults than progression to end-stage renal disease or other disease-specific endpoints. Individual older adults with multimorbidity and their family members may prioritize outcomes and define quality of life in different ways. An important question for healthcare professionals to consider in evaluating the evidence is whether the outcomes reported are ones that are meaningful for older adults with multimorbidity.

Harms and Burdens

In considering clinical management choices, clinicians must weigh the anticipated benefits against the potential harms and burdens of the treatment, which requires an assessment of information from the medical literature about the harms and benefits of the particular intervention.

Several potential pitfalls require special attention in the management of older adults with multimorbidity. For example, short-term efficacy studies may not follow patients long enough to afford an adequate estimate of rates of adverse events and other harms. Also, few clinical trials report the burden that patients experience in following the treatment regimen. In addition, following guidelines for one disease may exacerbate another coexisting condition. Accordingly, it is important not only to ascertain whether adverse events associated with an intervention were reported, or were relevant or described correctly, but it is also necessary to evaluate whether the potential for effect on other conditions was studied. Financial costs and the level of difficulty in following the treatment must also be considered, because these often affect adherence. Finally, treatment interactions in the clinical management of multimorbidity must be considered.

Absolute Risk Reduction

Study results are often conveyed in terms of relative risk reduction (RRR) rather than ARR, which often suggests strikingly impressive outcomes (e.g., a 50% RRR), but RRR is uninterpretable if the baseline risk is not reported. In contrast, the ARR is based on the risk of an outcome without treatment (or the baseline risk) minus the risk of the outcome with treatment, or ARR may reflect the difference between two comparator treatments. For example, a baseline risk without treatment of 2% minus a 1% risk with treatment would result in a 50% RRR but only a 1% ARR. Clinicians must always consider the baseline risk for the outcome in question for older persons with multimorbidity because the baseline risk for many relevant conditions may be higher or lower than that of the general population. Baseline risk can be ascertained from the control group of clinical trials, from observational studies or registries, or from prognostic indices that may provide for individualized risks. All of these potential sources can be evaluated from the perspective of their applicability to older adults with multimorbidity. A search of the medical literature—including single-disease CPGs and trial reports—may allow clinicians to ascertain the baseline risk for a certain outcome in older adults with multimorbidity and its potential variability.

RRR is often believed or assumed to be constant, regardless of the baseline risk. This suggests that RRR, in combination with estimated baseline risks, can be used to approximate ARR even in people with different baseline risks. In considering the quality of evidence and its applicability to older adults with multimorbidity, it is important to note that variability of RRR in this population has rarely been examined and needs to be tested in multiple clinical scenarios. In the absence of such data, clinicians may interpret results by looking for variability in baseline risks for primary outcomes reported in the literature and use RRR to estimate whether there are meaningful variations in ARR. If a study or CPG fails to consider whether there are variations in baseline risk, its results will be difficult to interpret for older adults with multimorbidity.

Time Horizon to Benefit

The medical literature frequently reports results in terms of number needed to treat (NNT) and number needed to harm (NNH), often without consideration of time period to outcome. This can be misleading, particularly when considering older adults with multimorbidity, who typically have more numerous and serious competing risks than older adults with only one or no chronic conditions. NNT and NNH are most helpful in this population when the result includes a time factor (e.g., "The number needed to treat to prevent one death was 50 patients over 5 years of treatment," or "For every 200 people treated in a 5-year period, one will be harmed by a myocardial infarction"). In many cases, the reported number of years is simply the duration of the study, despite the fact that there may be statistically significant or clinically meaningful benefits and harms of treatment that occur more rapidly than the preestablished trial length. Although this information may be infrequently discernible from the primary literature or from CPGs, clinicians should look for a time horizon to benefit associated with any treatment when making clinical management decisions.

Time horizon to benefit is the length of time needed to accrue an observable, clinically meaningful risk reduction for a specific outcome. Similarly, time horizon to harm is also important. In considering clinical management of older adults, clinicians need to consider the anticipated time until benefits are likely to be realized. For example, antiplatelet treatments can be expected to result in immediate benefit in risk of acute myocardial infarction, and depressed mood usually responds to antidepressant medication within weeks. For some chronic conditions, certain interventions are beneficial only after longer durations of treatment, for example, tight glycemic control in diabetes mellitus and bisphosphonate therapy in osteoporosis. In such cases, clinicians and older persons should decide jointly whether the anticipated benefits warrant a long-term burden and potential harms of treatment for the patient. Because the time horizon to benefit of tight glycemic control in diabetes mellitus is believed to be at least 5–7 years, rigorous control of blood glucose is unlikely to help, and more likely to harm, older adults with multimorbidity who are at high risk of dying from another condition. There is often imperfect information on time horizon to benefit, and study design factors such as the length of follow-up and sample size affect estimations that can be determined from the literature.

III. Prognosis Domain

Guiding Principle

Frame clinical management decisions within the context of risks, burdens, benefits, and prognosis (e.g., remaining life expectancy, functional status, quality of life) for older adults with multimorbidity.

How to Use in Clinical Practice

Clinicians need to consider various factors when developing an approach that will incorporate prognosis into clinical decision-making: framing a focused clinical question; determining the outcome being predicted (e.g., remaining life expectancy, functional ability, quality of life, or a condition-specific risk such as stroke); selecting a prognosis measure, while recognizing its strengths and weaknesses; estimating prognosis; and integrating this information into the decision-making process.

Regardless of ethnicity, a majority of older adults wish to discuss prognosis, but a minority do not. Clinicians should offer to discuss prognosis, but not all older adults with multimorbidity may wish to do so. A culturally sensitive manner is always recommended, because culture often influences priorities in treatment and care. One helpful tool, *Doorway Thoughts*, offers "clinical pearls" to clinicians, as well as specific considerations for particular ethnic groups to facilitate the approach to this conversation. The dialogue that ensues needs to follow the ethical principles of autonomy (patient self-determination), beneficence (promotion of patient well-being), nonmaleficence (avoidance of harm), and justice (protection of vulnerable populations and fair allocation of resources).

Specific situations in which a determination of prognosis may help inform clinical decision-making include disease prevention or treatment (e.g., whether to start or stop a medication or insert or replace a device), disease screening (e.g., for cancer, cognitive decline, osteoporosis), change in a patient's clinical status (e.g., functional decline, weight loss, falls), and type of health service to use (e.g., whether to hospitalize a patient or provide aggressive intensive care unit treatment). The specifics about which prognostic measure to include and what prognostic information to share with patients and families are part of the total integrated process of decision-making, in conjunction with an evaluation of the evidence and patient-stated preferences.

When attempting to integrate prognosis into clinical decision-making, it is helpful to prioritize decisions based on life expectancy or other outcomes. Using this approach, decisions are categorized as short-term (within the next year), midterm (within the next 5 years), and long-term (beyond 5 years). A patient with limited life expectancy would focus efforts on relevant short-term decisions such as appropriate intensity of glucose control and monitoring, use of physical therapy for strengthening and endurance, consideration of advance directives, and whether to continue to live alone. Midterm or long-term decisions would have lower priority and might include decisions related to lipid or breast cancer screening. In this way, prognosis can inform clinical decision-making by helping to prioritize elements of the care plan and inform treatment decisions so that patients consider treatments and interventions from which they are most likely to receive benefit and reduce the chance of experiencing harms without benefit.

Although the science of prediction and forecasting in medicine continues to evolve, some evidence exists to help clinicians estimate prognosis. Published tools are usually developed and tested in specific settings, potentially limiting the measure's validity in other settings. For example, it is likely that a measure estimating remaining life expectancy developed in the community would lack validity in the nursing home or hospital. Also, clinicians need to consider which type of measure to incorporate and how well it applies to older individuals with multimorbidity. Tools developed for estimating remaining life expectancy have been the most widely studied and include measures for specific diseases (e.g., congestive heart failure, cancer, chronic obstructive pulmonary disease, dementia), as well as life tables broken down according to age, sex, and distribution of life expectancy for specified ages. Others include measures of functional status (e.g., self-report and performance based), integrated measures or indices (e.g., Vulnerable Elders Survey or index based upon National Health Interview Survey), and measures of advanced illness (e.g., palliative prognostic score and palliative performance scale). Unfortunately, fewer measures are currently available to help predict functional disability and future quality of life, even though clinicians and patients frequently cite this as an important determinant in clinical decision-making.

IV. Clinical Feasibility Domain

Guiding Principle

Consider treatment complexity and feasibility when making clinical management decisions for older adults with multimorbidity.

How to Use in Clinical Practice

Because treatment complexity often increases with multimorbidity, an interdisciplinary team should assess the ability of older adults with multimorbidity to manage or adhere to a treatment plan or medication regimen on an ongoing basis. Various tools exist that measure medication management capacity, including the Medication Management Ability Assessment (MMAA), Drug Regimen Unassisted Grading Scale (DRUGS), Hopkins Medication Schedule (HMS), and the Medication Management Instrument for Deficiencies in the Elderly (MedMaIDE). Regardless of the evaluation tool used, the assessment needs to be individualized, and a patient-centered discussion must be held in collaboration with the support system (e.g., family, caregivers). These steps will help guide optimal treatment approaches and options for the individual. Emerging evidence illustrates that consistent medication regimens, as well as medication management support, results in fewer hospitalizations. Various interventions to optimize medication management have been studied (e.g., medication packaging, reminder

systems, education) with varying degrees of effect on clinical outcomes.

In older adults with multimorbidity, evidence-based medicine alone does not provide an adequate guide to the best clinical management. Furthermore, the use of condition-specific CPGs to dictate practice leads to regimens that are overly complex, burdensome, and unrealistic for adherence. When approaching a complex treatment regimen, clinical feasibility and individual preferences should inform choices about treatment. This emphasis on concordance between clinician and patient in the development of a treatment plan may lead to improvements in motivation, persistence, and adherence. It may also help to improve the clinicians' perspective on medication prescribing.

It is imperative to identify treatment complexity through discussions about adherence and the individual preferences of older adults with multimorbidity. These discussions will help frame the approach that is needed to avoid adverse drug reactions with problematic medications such as anticoagulants, overuse or underuse of which can lead to hospital admissions. The individual's own resolution to adhere to medications, change eating patterns, engage in exercise, or make other medical and lifestyle decisions are manifestations of their desire, willingness, and ability to achieve a given outcome or goal. There is growing literature on education programs that teach patients self-management skills. These help patients set realistic goals and realize the self-efficacy necessary to achieve them.

In the development of patient-centered, feasible treatment plans, there is always the possibility of conflicts arising between what clinicians want and what an individual with multimorbidity is willing to accept. Such conflicts will require ongoing consideration, education, and reevaluation. Care transitions are important opportunities to reevaluate treatment complexity, especially in light of the high incidence of nonadherence.

V. Optimizing Therapies and Care Plan Domain

Guiding Principle

Use strategies for choosing therapies that optimize benefit, minimize harm, and enhance quality of life for older adults with multimorbidity.

How to Use in Clinical Practice

In attempting to reduce the number of interventions, the first step is to identify treatments that may be inappropriate in older adults or in persons with multimorbidity. Several consensus statements and expert-derived criteria exist to identify potentially inappropriate medications (PIMs) in older adults (see Table 4 in original guideline document). Drugs that should be avoided are suggested in the Beers list, whereas explicit indicators for prescribing are offered in the Screening Tool to Alert to Right Treatment and Screening Tool of Older Persons' Potentially Inappropriate Prescriptions (START/STOPP). Medications that are consistently considered inappropriate in multiple criteria include benzodiazepines and tricyclic antidepressants. Similar strategies may be used in choosing procedures and nonpharmacological therapies. Also, a clinician who is considering the use of an implantable cardiovascular electronic device can refer to an expert-derived consensus statement, which recommends consideration and reevaluation of the benefits and risks of the therapy including clear discussion with patients and families of their preferences, keeping functional status and quality of life in mind.

Other approaches for identifying PIMs include the application of algorithmic tools such as the Medication Appropriateness Index (MAI), as well as sedative and anticholinergic indices. The goal of these approaches is to identify medications associated with a greater risk of adverse events (falls, impaired cognition, and other geriatric syndromes) and detect greater healthcare use and costs due to these adverse events.

Applying these principles in clinical practice can be particularly challenging because older adults with multimorbidity are at greater risk for healthcare transitions and use. A recent evaluation of PIMs and actually inappropriate medications (AIMs) noted that 66% of older adults were admitted to the hospital using one of these medications and that 85% were taking these medications at discharge. Approximately 50% of the AIMs were started in the intensive care unit. This finding, in addition to others, speaks to the importance of evaluating medication appropriateness during reconciliation of medications at hospital admission and at intensive care unit and hospital discharge.

Identifying interventions that should not be initiated or should be stopped can be a complex process in this population. Factors to consider include the likelihood of benefit in terms of altering the person's baseline risk for the particular outcome, the risk of harm, and a comparison of the time horizon to benefit and the patient's likely remaining life expectancy (prognosis). For older adults with advanced disease or limited remaining life expectancy, achievable benefits are unlikely to offset the risks and burdens of clinical management. For example, secondary prevention interventions in diabetes mellitus to reduce risk of long-term complications are unlikely to provide meaningful benefit in this context. In older adults with multimorbidity, clinicians would be advised to avoid starting this type of clinical management or to stop the intervention if it has already been initiated. In cases in which a therapy has been ongoing for a significant length of time, benefits may persist after discontinuation, moderating any harm that withdrawal of the treatment might create.

Polypharmacy associated with multimorbidity may also be burdensome in other ways for patients. Adding medications to treat multiple conditions is likely to lead to a reduction in overall drug benefit and an additive effect of harms and side effects. While acknowledging the

benefits of medication, persons with multimorbidity express concerns about burdensome side effects with multiple medication use. Side effects become especially problematic when they lead to greater medication use; one definition of polypharmacy or medication overuse is the misidentification of drug side effects as a new medical condition leading to a new prescription—the so-called "prescribing cascade." Nonpharmacological therapies such as physical therapy or lifestyle modification should be considered as alternatives to medication to limit side effects. Finally, drugs are costly, and the additional financial stress may generate a significant burden in itself.

Older adults with multimorbidity need good information to help them make decisions about clinical management, including clear explanations regarding uncertainty about potential benefits and harms. Individuals are often less informed about possible adverse effects than about the benefits of their medications. Although it may be easier to frame a discussion around stopping or not starting interventions that are harmful, discussions and decision making about interventions with a higher risk-to-benefit ratio or about a long-time horizon to benefit may be more difficult and time consuming. Ultimately, choices should be made after careful discussion with the individual with multimorbidity, and the reasons for arriving at the decision should be documented.

A detailed plan for safe discontinuation needs to follow any decision to stop a medication but little evidence from well-designed trials is available to guide this process for specific therapies. Many medications can be safely discontinued without the need to taper dosages or withdraw slowly to avoid significant adverse events attributed to medication termination. However, certain drug classes, especially those that act on the cardiovascular or central nervous system, need to be discontinued cautiously, because these are most often associated with adverse drug withdrawal events, including exacerbation of underlying disease. If there is uncertainty about discontinuing a medication, a time-limited withdrawal can help clarify whether the medication was needed in the first place. Medications should ideally be stopped one at a time. When further assistance is needed, clinicians should partner with pharmacists and other clinicians to optimize medication selection and management.

Clinical Algorithm(s)

An approach to the evaluation and management of the older adult with multimorbidity is provided in the original guideline document.

Scope

Disease/Condition(s)

Multimorbidity (multiple chronic health conditions)

Guideline Category

Counseling

Evaluation

Management

Prevention

Risk Assessment

Treatment

Clinical Specialty

Family Practice

Geriatrics

Internal Medicine

Pharmacology

Psychiatry

Intended Users

Advanced Practice Nurses

Health Care Providers

Nurses

Pharmacists

Physician Assistants

Physicians

Public Health Departments

Guideline Objective(s)

- To present a clinical approach to the care of older people with multimorbidity that describes guiding principles for the clinical management of this population
- To facilitate the development and growth of an evidence base by which clinicians can make sound care decisions for this population, including the testing of better processes for decision-making
- To help guide clinicians through the complex process of managing older adults with multimorbidity

Target Population

Older adults with multiple chronic conditions, or "multimorbidity"

Interventions and Practices Considered

1. Eliciting and incorporating patient preferences into medical decision-making
 - Recognizing when the older adult is facing a "preference sensitive" decision
 - Ensuring that older adults are adequately informed about the expected benefits and harms of treatment options
 - Eliciting patient preferences only after the individual is sufficiently informed
2. Recognizing the limitations of the evidence base and interpreting/applying evidence specifically to older adults with multimorbidity
 - Analyzing the applicability and quality of evidence
 - Analyzing importance of reported outcomes
 - Interpreting absolute risk reduction
 - Analyzing time horizon to benefit of treatment options
3. Framing clinical management decisions within the context of risks, burdens, benefits, and prognosis
4. Considering treatment complexity and feasibility when making clinical management decisions
5. Choosing therapies that optimize benefit, minimize harm, and enhance quality of life

Major Outcomes Considered

Not stated

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Literature Review Methods

Two distinct literature review strategies were used for this project. The first used a structured PubMed literature search strategy. The second consisted of a citation search of relevant articles.

Structured Literature Search

This is not a systematic review. Four separate literature searches were conducted: one each for the Patient Preferences, Interpreting the Evidence, Prognosis, Clinical Feasibility, and Optimizing Therapies and Care Plans sections. A separate search was not conducted for the Barriers section of the original guideline document. Instead, panel members were asked to look for, and identify, articles that addressed potential barriers and challenges in relation to any of the aforementioned domains.

Panel members recommended a list of domain-specific search terms based on their knowledge of the subject matter, their experience with the literature, and key words found in articles considered to be highly representative of the domain topic. An informationist from the Johns Hopkins Welch Library was consulted on construction of the search strategy. First, all of the appropriate Medical Subject Heading (MeSH) terms that aligned with each of the proposed search terms were identified. Terms without appropriate MeSH headings were added to the search strategy in quotation marks. The overall strategy of the PubMed literature search was to cross the domain-specific concepts with the general concept of multiple chronic conditions, or multimorbidity. Because there are no specific MeSH terms for the concept of "multimorbidity" or "multiple chronic conditions," a list of possible terms related to this concept was created. For each of the four searches, the domain-specific search terms were combined with the search terms related to the concept of multiple chronic conditions through use of the Boolean operator "AND" (see Table 1 in original guideline document). Only articles published in English since January 2000 were included. The date range entered was 2000-3000, meaning that everything in the year 2000 was included until the present. The last search was completed on September 1, 2011.

The panel members were provided with the title and abstracts of all of the articles identified using the searches. Each was instructed to reject articles that were not related to the domain topic, not related to patients with multimorbidity, not related to adults, or not relevant for any other reason. Panel members retained articles that were pertinent to any or all of the project domains (regardless of the domain to which they were assigned). They were then provided with the full text of all articles retained for their review and consideration.

Relevant Article Review

In addition to the literature search described above, a search was conducted of articles that panel members determined to be highly relevant to each domain. For each of the relevant articles, a cited reference search was conducted using the Web of Science to find the articles that cited each relevant article. The number of relevant articles per domain, the number of unique citations arising from those articles, and the number of articles retained for review are provided in Table 2 of the original guideline document. In addition to both of these methods, panelists also reviewed the list of references at the end of each relevant article to capture any additional articles that might have been missed. Major areas of uncertainty or areas where relevant evidence is limited are specifically described, with the goal of highlighting the topics that are most critically in need of future research.

Number of Source Documents

A total of 585 articles were retained for review from the PubMed search on domain-specific search terms. Although there was no primary literature search for barriers, panelists identified 120 articles while reviewing the abstracts for all of the preceding domains. In the cited-reference search of relevant articles, 343 articles were retained for review, and an additional 30 articles on barriers were identified by panelists while reviewing the abstracts of the cited-reference search.

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Rating Scheme for the Strength of the Evidence

Not applicable

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The American Geriatrics Society (AGS) convened an expert panel with complementary expertise in these topics along with a special interest in older adults with multimorbidity. The goal of the panel was to develop an approach by which clinicians can care optimally for this particular population. It is important to note that this document is not a guideline. A structured literature review was used to inform this work, but unlike a traditional guideline, this document does not issue recommendations based on rigorous evaluation of the quality of evidence for specific clinical questions followed by an assessment of harms and benefits and recommendation statements.

Through a one day in-person meeting and a series of conference calls, the panel proposed that the document contain five domains relevant to the care of older adults with multimorbidity: Patient Preferences, Interpreting the Evidence, Prognosis, Clinical Feasibility, and Optimizing Therapies and Care Plans. These domains were used to organize the report, although there is inherent overlap among them. Some of the individual domains apply to multiple steps of the flowchart (see Figure 1 in original guideline document). In addition to the five domains, a section on Barriers focuses on real world challenges to implementing this approach in older adults with multimorbidity.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

The guideline developers reviewed published cost analyses.

Method of Guideline Validation

External Peer Review

Description of Method of Guideline Validation

External Review

The document was circulated for peer review to a number of organizations with special interest and expertise in treating older adults with multimorbidity and was posted to the American Geriatric Society (AGS) website for public comment. Organizations that participated in peer review are noted in the Acknowledgments section of the original guideline document.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting each recommendation is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Improvement in the integration of care for older individuals with multimorbidity
- Individualized, flexible approaches to care in older patients with multimorbidity

Potential Harms

- Harms may include medication and therapy interactions and side effects.
- For older adults with advanced disease or limited remaining life expectancy, achievable benefits are unlikely to offset the risks and burdens of clinical management.
- In considering clinical management choices, clinicians must weigh the anticipated benefits against the potential harms and burdens of the treatment, which requires an assessment of information from the medical literature about the harms and benefits of the particular intervention. Several potential pitfalls require special attention in the management of older adults with multimorbidity. For example, short-term efficacy studies may not follow patients long enough to afford an adequate estimate of rates of adverse events and other harms. Also, few clinical trials report the burden that patients experience in following the treatment regimen. In addition, following guidelines for one disease may exacerbate another coexisting condition. Accordingly, it is important not only to ascertain whether adverse events associated with an intervention were reported, or were relevant or described correctly, but it is also necessary to evaluate whether the potential for effect on other conditions was studied. Financial costs and the level of difficulty in following the treatment must also be considered, because these often affect adherence. Finally, treatment interactions in the clinical management of multimorbidity must be considered.
- Harms and burdens associated with many tests increase with age and comorbidity.

Qualifying Statements

Qualifying Statements

- It is important to note that this document is not a guideline. A structured literature review was used to inform this work, but unlike a traditional guideline, this document does not issue recommendations based on rigorous evaluation of the quality of evidence for specific clinical questions followed by an assessment of harms and benefits and recommendation statements. By definition, older adults with multimorbidity are heterogeneous in terms of severity of illness, functional status, prognosis, and risk of adverse events even when diagnosed with the same pattern of conditions. Priorities for outcomes and health care also vary. Thus, not only the individuals themselves, but also the treatments that clinicians consider for them will differ. As a result, clinicians must pursue more-flexible approaches to care in these older patients.
- The adoption of these guiding principles for clinical decision-making and the management of older adults with multimorbidity may improve their health care and outcomes. Patients should be evaluated, and care plans should be designed and implemented according to the individual needs of each patient, with the recognition that few studies are currently available that have rigorously evaluated the effectiveness of approaches related to these guiding principles. For this reason, nonadoption of these principles should not imply medical liability or

malpractice. These principles are intended to help guide clinicians through the complex process of managing older adults with multimorbidity. They highlight the urgent need for more research in the optimal management of the growing population of older adults with multimorbidity.

- The views expressed in this paper are those of Dr. Rosaly Correa-de-Araujo and do not necessarily represent the views of the Department of Health and Human Services or the U.S. federal government.

Implementation of the Guideline

Description of Implementation Strategy

Promising Approaches to Overcoming Barriers to Implementation of Guiding Principles in the Care of Older Adults with Multimorbidity

There are important barriers to implementing these guiding principles in clinical practice. Few interventions have been developed that systematically and simultaneously address the restructuring of the healthcare delivery process, changes in clinician behavior, and the support that patients and their caregivers need, with the ultimate goal of improving the quality of care in this population. A clinician who aims to implement the guiding principles described above needs an effective healthcare team made up of interdisciplinary clinicians, as well as family, friends, and paid caregivers across sites of care, including the home; adequate training; reimbursement structures that reward patient-centered medical care; and an evidence base relevant to older adults with multimorbidity. These components, which are beyond an individual clinician's immediate control, must also change to fully address the healthcare needs and outcomes of older adults with multimorbidity.

Coordination of Care and Patient-Centered Medical Home

Because individuals with multimorbidity consult more clinicians (generalists and specialists), implementing these guiding principles can be difficult without adequate systems of primary care medicine and central care coordination. Although the limited geographic availability of healthcare resources also restricts access to primary care and geriatricians, having an identified "primary" provider or practice, such as a patient-centered medical home, may help older adults with multimorbidity (and when applicable, their family or social supports) make more-informed decisions about their priorities and improve coordination of care among clinicians. Consequently, these principles may guide the development and implementation of an effective patient-centered plan of care. In turn, such a plan can facilitate care coordination and integration of healthcare services and support services within and between sites of care.

Primary care providers may not have established relationships with collaborative partners, such as pharmacists, who are helpful for the implementation of these principles. Similarly, the presence of mental illness highlights the need for integration of mental health services in clinical healthcare management for these individuals. Effectively working with specialists may be challenging for some primary care providers because of the lack of effective communication systems and inadequate access to appropriate types of specialists. Also, specialists may not recognize serious problems facing older adults with multimorbidity, including the importance of coordinating with a primary provider and the complexity of managing multiple conditions. These are challenges that the development of true patient-centered medical homes will help address, although all clinicians need more training in the care of older adults with multimorbidity to achieve optimal management of these individuals.

Workforce Training: The Need for Curriculum Development and Training

Adequate evidence-based patient-centered care for older people with multimorbidity will likely require greater partnership between government agencies, professional organizations, and academic institutions to develop the ability to care for older adults with multimorbidity. Clinicians are often insufficiently trained to care for these individuals. Because education programs usually focus on single-disease entities, there is a need for new curricula with an emphasis on care of people with multimorbidity. Investing resources in education will stimulate the development and implementation of such curricula across healthcare disciplines.

Older adults with multimorbidity may have a particular need for assistance with activities of daily living (ADLs) and instrumental activities of daily living (IADLs), in addition to healthcare management tasks. Without adequate support, many older adults with multimorbidity may base treatment decisions on their inability to perform daily care. One example of such a situation would be that of an individual with diabetes mellitus who is unable to check his or her own blood sugar because of an essential tremor. In such a case, self-monitoring would not be an acceptable part of the treatment plan. Although family members, friends, and other caregivers accompany many older adults when they visit their clinician, and despite the fact that this involvement tends to persist over time, many clinicians do not know how to integrate family or friends into an effective partnership for healthcare management. Emerging evidence is focusing on care facilitation by caregivers. New interventions, such as the Guided Care Program for Families and Friends (GCPFF), have been developed to support caregivers of older adults with complex health-related needs. Such work is a promising first step in the development of comprehensive models of chronic care delivery for this population.

Inadequate communication skills and educational materials are also barriers to the care of older adults with multimorbidity. Because conversations about prognosis and preferences can often be difficult for clinicians, training of all healthcare team members must address communication skills. Ethnic and cultural factors may also affect management. Cultural sensitivity on the part of the provider may improve treatment adherence and outcomes, particularly if the older adult has a different ethnic background from that of the healthcare professional. A problematic "mismatch" can also occur if clinician–patient management styles differ. For example, a clinician who practices in a paternalistic style may unintentionally antagonize an older individual who prefers shared decision-making, or vice versa. Illiteracy (including healthcare illiteracy), language barriers, and hearing and visual impairments may also affect outcomes. As ethnic and racial diversity of older Americans increases, printed educational materials in preferred languages may not always be available for every chronic condition. Thus, facilitation of communication will require investment in curricula for communication skills and development of patient educational tools that address these barriers.

Reimbursement Structure

To care for older people with multimorbidity adequately, there must be changes in the current reimbursement structure to provide incentives to the provision of quality care. All necessary team members need to receive appropriate compensation, which will allow adequate time to be spent with patients and families to help them become well informed participants in this patient-centered approach. Unfortunately, the current reimbursement structure rewards acute, episodic, and specialist care for "quantity" of patients seen, not for "quality" of care delivered. Therefore, the current systems of patient care need to be modified to allow more time and resources for patients and their families and caregivers. Also, care that is organized around single diseases may be inadequate because single-disease rehabilitation, support, and education groups are not able to meet the needs of complex, heterogeneous patients. In addition, clinical practice guidelines pertaining exclusively to a single disease or condition may be used to determine clinician compensation in pay-for-performance formats. The focus on provider performance of process indicators for common single, chronic diseases may influence clinicians to provide unnecessary or potentially harmful care to older adults with multimorbidity. Thus, development of performance standards appropriate for older adults with multimorbidity that are adequate for trial use in pay-for-performance demonstrations is imperative.

Performance criteria should also be developed to reward approaches known to improve patient health outcomes, functional status, and quality of life. Because Medicare and Medicaid are the main payment sources for health care in older adults with multimorbidity, they are the most appropriate agencies to implement innovative demonstration projects in payment system reform efforts. The Centers for Medicaid Medicare Innovation have solicited proposals to do so. As the number of older adults living with multimorbidity increases, the need to identify and support effective clinical management approaches will become more acute.

Implementation Tools

Clinical Algorithm

Patient Resources

Pocket Guide/Reference Cards

Quick Reference Guides/Physician Guides

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

End of Life Care

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity. Guiding principles for the care of older adults with multimorbidity: an approach for clinicians. J Am Geriatr Soc. 2012 Oct;60(10):E1-25. [222 references] [PubMed](#)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Oct

Guideline Developer(s)

American Geriatrics Society - Medical Specialty Society

Source(s) of Funding

American Geriatrics Society

Guideline Committee

American Geriatrics Society (AGS) Expert Panel on the Care of Older Adults with Multimorbidity

Composition of Group That Authored the Guideline

Expert Panel Members: Cynthia M. Boyd, MD, MPH (*Chair*) and Matthew K. McNabney, MD (*Chair*), School of Medicine, Johns Hopkins University, Baltimore, MD; Nicole Brandt, PharmD, BCPP, CGP, University of Maryland, Baltimore, MD; Rosaly Correa-de-Araujo, MD, MSc, PhD, U.S. Department of Health and Human Services, Washington, DC; Kathryn M. Daniel, PhD, RN, ANP-BC, GNP-BC, University of Texas at Arlington, Arlington, TX; Jerome Epplin, MD, Litchfield Family Practice Center, Litchfield, IL; Terri R. Fried, MD, School of Medicine, Yale University, New Haven, CT; Mary K. Goldstein, MD, MS, VA Palo Alto Health Care System, Palo Alto, CA, Stanford University, Palo Alto, CA; Holly M. Holmes, MD, MD Anderson Cancer Center, Houston, TX; Christine S. Ritchie, MD, MSPH, School of Medicine, University of Alabama at Birmingham, Birmingham, AL; Joseph W. Shega, MD, School of Medicine, University of Chicago, Chicago, IL

Financial Disclosures/Conflicts of Interest

To ensure that potential conflicts of interest were clarified and addressed appropriately, each member disclosed his or her potential conflicts of interest to the expert panel at the onset.

Conflict of Interest

Dr. Boyd is a Paul Beeson Career Development Awardee funded by the NIA K23 AG032910, AFAR, The John A. Hartford Foundation, The Atlantic Philanthropies, The Starr Foundation and an anonymous donor. Dr. Boyd is an author for UpToDate, Inc. Dr. Brandt is on the Pharmacy and Therapeutics Committees at Omnicare and receives grants from Talyst (research grant), Econometrica (research grant), Health Resources and Services Administration (educational grant), and the State of Maryland Office of Health Care Quality (educational grant). Dr. Ritchie serves as a paid consultant to the University of Puerto Rico for a National Institute of Health research grant, receives grant funding from the Donald W. Reynolds Foundation (educational grant), and is an author for UpToDate, Inc.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the [American Geriatrics Society Web site](#) .

Availability of Companion Documents

The following are available:

- American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity. Patient-centered care for older adults with multiple chronic conditions: a stepwise approach from the American Geriatrics Society. Summary document. J Am Geriatr Soc 2012 Oct;60(10):E1-12. Electronic copies: Available in Portable Document Format (PDF) from the [American Geriatrics Society \(AGS\) Web site](#) .
- Guiding principles for the care of older adults with multimorbidity pocket card. American Geriatrics Society; 2012. 4 p. Electronic copies: Available in PDF from the [AGS Web site](#) .
- Implementation tables: How to use in clinical practice. Electronic copies: Available from the [AGS Web site](#) .

In addition, case examples are available in the [original guideline document](#) .

Patient Resources

The following is available:

- Living with multiple health problems. What older adults should know. New York: American Geriatrics Society Foundation for Health in Aging; 2012 Aug. 2 p. Electronic copies: Available in Portable Document Format (PDF) from the [Health in Aging Web site](#) .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI Institute on February 12, 2013.

Copyright Statement

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions. For more information on the American Geriatrics Society (AGS) or AGS guidelines visit their Web site www.americangeriatrics.org , or call (212) 308-1414.

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouse[®] (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion-criteria.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.